and procedures in section 4.4.1 through 4.4.3 of this appendix to determine hourly CO_2 mass emissions (in tons).

4.4.1 Use appropriate F and F_c factors from section 3.3.5 of this appendix in the following equation to determine hourly average CO_2 concentration of flue gases (in percent by volume).

$$CO_{2d} = 100 \frac{F_c}{F} \frac{20.9 - O_{2d}}{20.9}$$

(Eq. F–14a)

Where:

CO_{2d}=Hourly average CO_2 concentration, percent by volume, dry basis.

F, F_c=F-factor or carbon-based Fc-factor from section 3.3.5 of this appendix.

20.9=Percentage of O_2 in ambient air.

O_{2d}=Hourly average O_2 concentration, percent by volume, dry basis. A maximum concentration of 14.0 percent O2 may be substituted for the measured concentration during unit start-up.

or

$$CO_{2w} \frac{100}{20.9} \frac{F_c}{F} \left[20.9 \left(\frac{100 - \%H_2O}{100} \right) - O_{2w} \right]$$

(Eq. F–14b)

Where:

CO_{2w}=Hourly average CO_2 concentration, percent by volume, wet basis.

O_{2w}=Hourly average O_2 concentration, percent by volume, wet basis. A maximum concentration of 14.0 percent O_2 may be substituted for the measured concentration during unit start-up.

F, F_c=F-factor or carbon-based F_c-factor from section 3.3.5 of this appendix.

20.9=Percentage of O_2 in ambient air.

$\%H_2O$=Moisture content of gas in the stack, percent.

4.4.2 Determine CO_2 mass emissions (in tons) from hourly average CO_2 concentration (percent by volume) using Equation F–11 and the procedure in section 4.1, where O_2 measurements are on a wet basis, or using the procedures in section 4.2 of this appendix, where O_2 measurements are on a dry basis.

5. Procedures for Heat Input

Use the following procedures to compute heat input to an affected unit (in mmBtu/hr or mmBtu/day).

5.1 Calculate and record heat input to an affected unit on an hourly basis, except as provided below. The owner or operator may choose to use the provisions specified in §75.16(e) or in section 2.1.2 of appendix D of this part in conjunction with the procedures provided below to apportion heat input among each unit using the common stack or common pipe header.

5.2 For an affected unit that has a flow monitor (or approved alternate monitoring system under subpart E of this part for measuring volumetric flow rate) and a diluent gas (O_2 or CO_2) monitor, use the recorded data from these monitors and one of the following equations to calculate hourly heat input (in mmBtu/hr).

5.2.1 When measurements of CO_2 concentration are on a wet basis, use the following equation:

$$HI = Q_w \frac{1}{F_c} \frac{\%CO_{2w}}{100}$$

(Eq. F–15)

where,

HI=Hourly heat input, mmBtu/hr.

Q_w=Hourly average volumetric flow rate, wet basis, scfh.

F_c=Carbon-based F-factor, listed in Section 3.3.5 of this appendix for each fuel, scf/mmBtu.